REMARKS

Claims 1-2, 4-14, 16, 20-25, 27, and 28 are currently pending in the subject application and are presently under consideration. Claims 1, 2, 5-14, 16, 20-25, 27, and 28 have been amended as shown on pages 2-7 of the Reply. Favorable reconsideration of the subject patent application is respectfully requested in view of the comments herein.

I. Rejection of Claims 9-11, 13, 24, and 25 Under 35 U.S.C. §103(a)

Claims 9-11, 13, 24, and 25 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Ito, *et al.* (EP 1 089 578 A2) in view of Rotstein, *et al.* (US 6,289,228). It is respectfully submitted that this rejection should be withdrawn for at least the following reasons. Ito, *et al.* and Rotstein, *et al.*, individually or in combination, do not disclose or suggest all aspects set forth in the subject claims.

> To reject claims in an application under § 103, an examiner must establish a prima facie case of obviousness. A prima facie case of obviousness is established by a showing of three basic criteria. First, there must be some apparent reason to combine the known elements in the fashion claimed by the patent at issue (*e.g.*, in the references themselves, interrelated teachings of multiple patents, the effects of demands known to the design community or present in the marketplace, or in the knowledge generally available to one of ordinary skill in the art). To facilitate review, this analysis should be made explicit. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. See MPEP § 706.02(j). See also KSR Int'l Co. v. Teleflex, Inc., 550 U.S. 398, 04-1350, slip op. at 14 (2007). The reasonable expectation of success must be found in the prior art and not based on applicant's disclosure. See In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)

The present application relates generally to synchronization of the time when a first communications module, such as an Ultra-Wideband (UWB) module, performs a wakeup process to the time when a second communications (COMM) module performs a wakeup process in a multi-mode device. To this end, the time the next scheduled COMM wakeup process to be performed by the COMM module can be established. Once the time for the next scheduled COMM wakeup process has been established, the next UWB wakeup process can be synchronized to be performed by the UWB module at

substantially the same time. According to one or more embodiments, the next UWB wakeup process is synchronized with the next COMM wakeup process if the next COMM wakeup process is scheduled to be performed before the next UWB wakeup process is scheduled to be performed (see, *e.g.*, paragraph [0013]). In particular, amended independent claim 9 recites, *determining a current communications time from a received pilot signal transmitted by a base station; determining a current UWB time from an internal clock in the UWB module; calculating a communications interval, the communications interval equaling a next communications wakeup time less the current communications time; and* ***synchronizing a new UWB wakeup time to the next communications wakeup time if the current UWB time plus the communications interval is less than a next UWB wakeup time***.

Contrary to arguments made in the Office Action, Ito, *et al.* does not disclose or suggest at least these features. Ito, *et al.* relates to a mobile radio communication terminal designed to provide power to a minimum number of circuits necessary for execution of a selected operation mode (see Abstract). Asserting that Ito, *et al.* discloses synchronization of a new UWB wakeup time to a next communications wakeup time *if the current UWB time plus the above-mentioned communication interval is less than a next UWB time*, the Office Action indicates in particular the second embodiment described in the cited reference. According to this embodiment, a wait period setting control means of the communication terminal supervises the leading edge of a wait operation period according to a W-CDMA system, and starts the wait operation according to a Bluetooth system in synchronization with the detection timing of the leading edge (see paragraph [0051] of Ito, *et al.*). However, at no point during this process is a determination made regarding whether a current UWB time plus a time interval equaling a next communications wakeup time less a current communications time is less than a next USB wakeup time.

Arguing that the second embodiment of Ito, *et al.* reads on these features, the Examiner ostensibly equates the W-CDMA wait time and the Bluetooth wait time of the Ito, *et al.* with, respectively, the communications wakeup time and the UWB wakeup time of independent claim 9. However, Ito, *et al.* does not calculate an interval equaling a *next W-CDMA wait time less a current W-CDMA time*, since the cited reference does

not indicate that a next W-CDMA wait time is computed in advance. Rather, as indicated at paragraph [0051] of Ito, *et al.* and illustrated at Figure 9, item 9d of that reference, the wait period setting control means merely monitors to detect when the W-CDMA wait time begins. Consequently, Ito, *et al.* does not disclose that the start of the next W-CDMA wait time is determined *in advance* of its actual occurrence, and therefore no communications interval equaling this next wait time minus a current time is calculated. Since no such interval is calculated, the cited reference is silent regarding the use of such an interval as a factor in determining whether to synchronize a new UWB wakeup time.

Moreover, the synchronization method described in Ito, *et al.* merely entails detecting the leading edge (*i.e.*, start) of the W-CDMA wait time, and starting the Bluetooth wait time upon detection of this leading edge. Hence, the cited reference does not disclose or suggest that synchronization can be dependent upon a determination that *a current UWB time plus the above-described communications interval is less than a next UWB wakeup time.*

Also, although page 3, paragraph 1 of the Office Action asserts that Ito, *et al.* discloses calculation of the communication interval described above, the subsequent paragraph concedes that Ito, *et al.* does not disclose such a calculation, and contends that Rotstein, *et al.* cures this deficiency. Rotstein, *et al.* relates to a technique for conserving power consumption in a communication device by powering up only those portions of electrical circuitry needed to monitor paging channels indicating activity (see Abstract). According to this technique, a few bits of paging channel status information is punctured on a common pilot channel. These bits give an indication if there is any activity on the paging channels and which paging channels are active. The communication device periodically polls the pilot channel to check these bits. Based on the status of the bits, the communication device only performs paging channel processing if there is an active paging channel, and only on those paging channels indicating activity (see column 4, lines 50-58).

With regard to calculation of the communication interval as provided in independent claim 9, the Office Action indicates that, in a typical CDMA system as described in Rotstein, *et al.*, a communication device wakes up prior to receiving a paging message to acquire the aforementioned pilot channels (column 9, lines 20-31).

However, it is unclear how this disclosure in any way suggests calculation of a communications interval equaling a *next* communications wakeup time less a *current* communications time, since the indicated portion of Rotstein, *et al.* merely discloses broadly that a wakeup occurs. Nothing is said of looking ahead to determine a next wakeup time for any purpose, much less to calculate an interval between such a next wakeup time and a current time. Since no such communications interval is computed in Rotstein, *et al.*, either at the indicated portion or elsewhere, it follows that the cited reference also fails to disclose synchronizing a new UWB wakeup time to a next communications wakeup time *if the current UWB time plus the communications interval is less than a next UWB wakeup time.*

Furthermore, even assuming *arguendo* that such a communication interval calculation is disclosed in Rotstein, *et al.*, combining Rotstein, *et al.* with Ito, *et al.* would nevertheless fail to render obvious the synchronization technique set forth in independent claim 9, wherein a new UWB wakeup time is synchronized to a next communications wakeup time *if the current UWB time plus the communications interval is less than a next UWB wakeup time*, since no determination is made in either cited reference regarding whether a current UWB time plus the aforementioned communication interval is less than a next UWB wakeup time. In view of these numerous deficiencies, it is respectfully submitted that the combination of Ito, *et al.* and Rotstein, *et al.* fails to disclose or suggest the synchronization method of independent claim 9.

Similarly, amended independent claim 25 recites, *means for synchronizing a new Ultra-Wideband (UWB) wakeup time to the next communications wakeup time* ***if the next communications wakeup time is earlier than a next UWB wakeup time***. Neither Ito, *et al.* nor Rotstein, *et al.* contemplate making a determination regarding whether a next communications wakeup time is earlier than a next UWB wakeup time. Rather, as discussed *supra*, Ito, *et al.* merely monitors to detect when a W-CDMA wait time begins, and starts a Bluetooth wait time upon detection of this W-CDMA wait time. The cited reference does not disclose that synchronization can be dependent upon a whether *a next communications wakeup time is earlier than a next UWB wakeup time*, or even that such a determination is made for any purpose. Rotstein, *et al.* also fails to disclose performing such a determination, or performing a synchronization based thereon.

Likewise, amended independent claim 14, from which claim 24 depends, recites, *a processor configured to* ***synchronize a new UWB wakeup time to the next communications wakeup time if the next communications wakeup time is earlier than a next UWB wakeup time.*** As already noted, the cited references are silent regarding these aspects.

In view of at least the foregoing, it is respectfully submitted that Ito, *et al.* and Rotstein, *et al.*, individually or in combination, do not disclose or suggest all features of amended independent claims 9, 14, and 25 (and all claims depending there from), and as such fail to render obvious the present application. It is therefore requested that this rejection be withdrawn.

II. Rejection of Claims 1, 2, 4-8, 12, 14, 16, 20-23, 27, and 28 Under 35 U.S.C. §103(a)

Claims 1, 2, 4-8, 12, 14, 16, 20-23, 27, and 28 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Ito, *et al.* in view of Rotstein, *et al.*, and further in view of Mayo, *et al.* (US 6,571,111). It is respectfully submitted that this rejection should be withdrawn for at least the following reasons. Ito, *et al.*, Rotstein, *et al.*, and Mayo, *et al.*, individually or in combination, do not disclose or suggest all features of the subject claims.

Amended independent claim 1 recites, *synchronizing a new wakeup time for the second communication module to the next wakeup time for the first communication module* ***if the next wakeup time for the first communication module is earlier than the next wakeup time for the second communication module***. As discussed in the previous section of the Reply, Ito, *et al.* and Rotstein, *et al.* fail to disclose or suggest synchronization of communication module wakeup times *if the next wakeup time for the first communication module is earlier than the next wakeup time for the second communication module*. Mayo, *et al.* does not cure these deficiencies. Mayo, *et al.* relates to a technique for reducing power consumption in a communications network that includes a plurality of limited power capacity devices. According to this technique, each device periodically receives a timing signal from a transmitter external to the network, and a real-time clock in each device is synchronized to the periodically received timing

signal. The awake and sleep periods of the devices are then synchronized based on this received signal (see column 2, lines 13-26). However, like Ito, *et al.* and Rotstein, *et al.*, Mayo, *et al.* does not contemplate making a determination regarding whether a next wakeup time for a first communication module is earlier than the next wakeup time for a second module. As such, the cited reference fails to disclose or suggest *synchronizing a new wakeup time for the second communication module to the next wakeup time for the first communication* contingent on such a determination.

Likewise, amended independent claim 2 recites, *synchronizing a new UWB wakeup time to the next communications wakeup time* ***if the next communications wakeup time is earlier than the next UWB wakeup time***. As discussed *supra*, the cited references are silent regarding these features.

Similarly, amended independent claim 14 recites, *a processor configured to synchronize a new UWB wakeup time to the next communications wakeup time* ***if the next communications wakeup time is earlier than a next UWB wakeup time***. None of Ito, *et al.*, Rotstein, *et al.*, or Mayo, *et al.* disclose these aspects, as discussed above.

Also, amended independent claim 27 recites, *synchronizing a new UWB wakeup time to the next communications wakeup time* ***if the next communications wakeup time is earlier than a next UWB wakeup time***. As noted *supra*, the cited references are silent regarding such a synchronization step.

Further regarding the communication interval used to determine whether to synchronize a first and a second communication module, amended claim 5 recites, *determining a communications interval, the communications interval equaling the next communications wakeup time less the current communications time*, while amended claim 6 recites, *synchronizing the new UWB wakeup time to the next communications wakeup time if the current UWB time plus the communications interval is less than the next UWB time*. As discussed above, Ito, *et al.* and Rotstein, *et al.* fail to disclose these synchronization aspects. Mayo, *et al.* does not remedy these shortcomings, since that cited reference does not contemplate synchronization of communication modules *if a current UWB time plus the above-described communications interval is less than the next UWB time*.

Similarly, amended claim 21 recites, *the processor is further configured to synchronize the new UWB wakeup time to the next communications wakeup time if the current UWB time plus the communications interval is less than the next UWB wakeup time.* Ito, *et al.*, Rotstein, *et al.*, or Mayo, *et al.* are silent regarding these features, as noted *supra*.

In view of at least the foregoing, it is respectfully submitted that Ito, *et al.* and Rotstein, *et al.*, alone or in combination with Mayo, *et al.*, do not disclose or suggest all features of amended independent claims 1, 14, and 27 (and all claims depending there from), and as such fail to make obvious the present application. It is therefore requested that this rejection be withdrawn.

CONCLUSION

The present application is believed to be in condition for allowance in view of the above comments and amendments. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063 [QUALP837US].

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicants' undersigned representative at the telephone number below.

Respectfully submitted,

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